

## Tropical Areas of Interest Discussion for September 1, 2010

Created 1600UTC September 1, 2010

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### Summary:

The main target of interest, as has been few days, is major Hurricane Earl. After a no-fly day, the DC-8 will once again fly into Earl; looking at the possibility of dust in the clear air to the west and northwest of the storm and the potential for an eyewall replacement cycle. Other potential targets are Tropical Storm Fiona, as well as a couple of waves in the east Atlantic. Fiona does not appear to be on a favorable track for investigation, but the track of the other waves in the Atlantic bears watching.

### Forecast for 1600 UTC 9/01/2010:

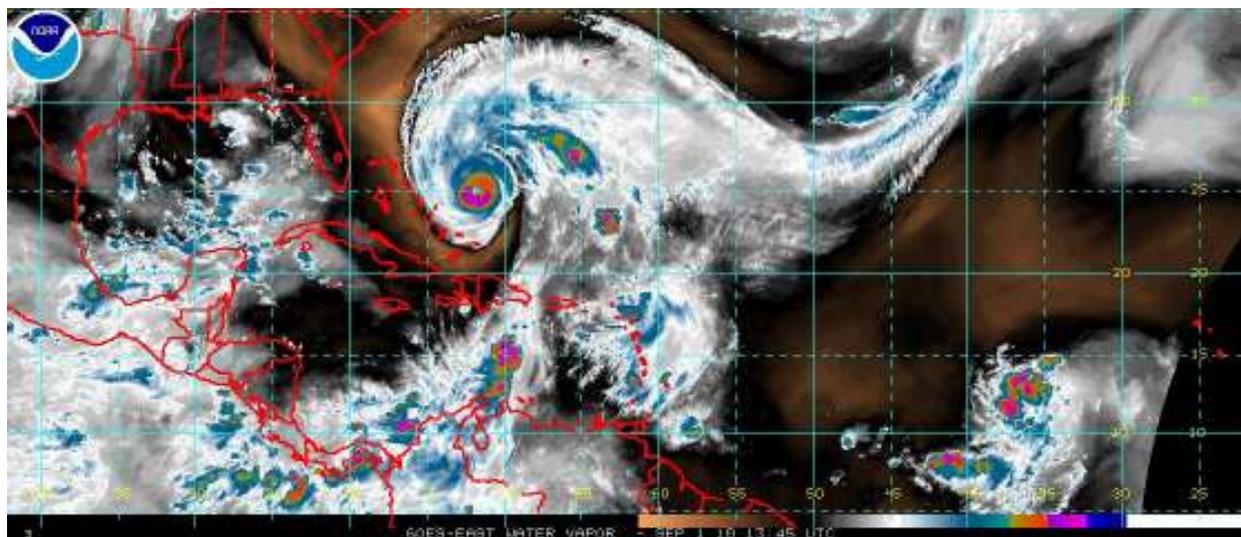
#### Synoptic Overview:

The Atlantic basin IR (1) shows 3 obvious features: Earl, off the coast of Florida, Fiona in the Caribbean and TD9 near 35W. One of the main steering features is the upper-level trough in the north Atlantic and an upper-level cyclone centered near 23W/60N and an upper-level cyclone in the Gulf (2). The Gulf of Mexico is not convectively active (1). The active easterly wave train continues to provide a number of potential targets in the future after an eventful week for Earl.

#### (1) Atlantic basin IR 1345 UTC on 1 September 2010



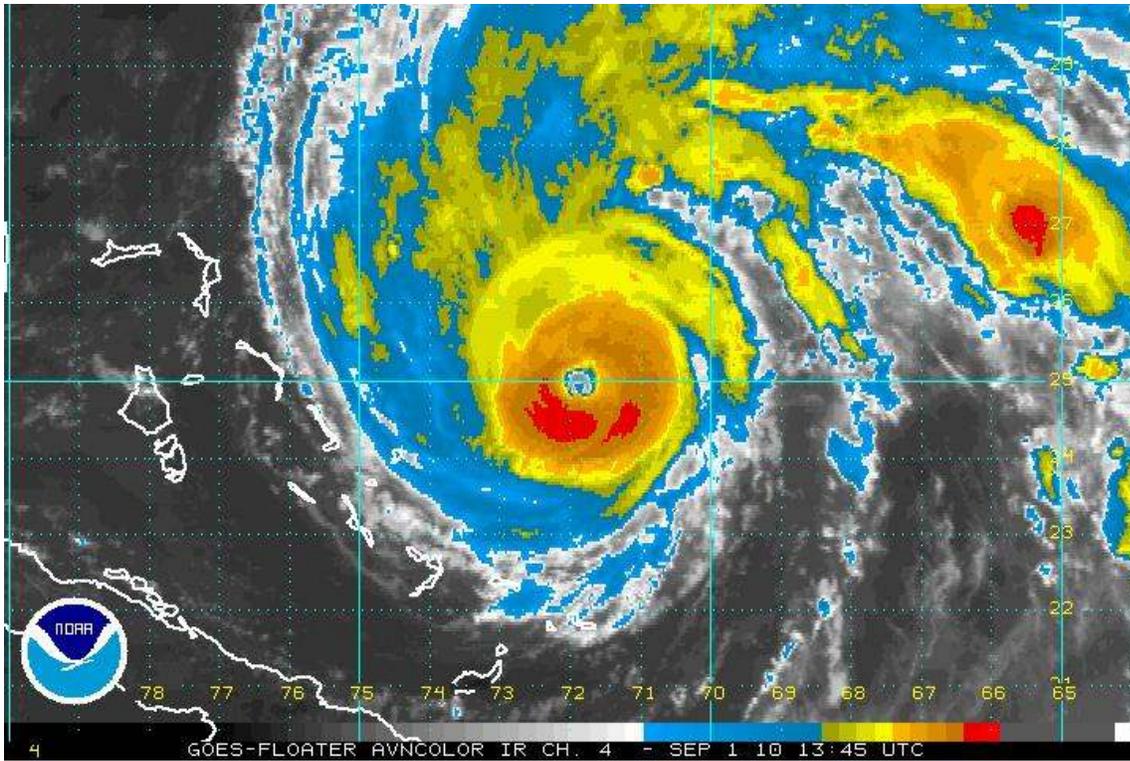
## (2) Atlantic basin Water Vapor on 1345 UTC on 1 September 2010



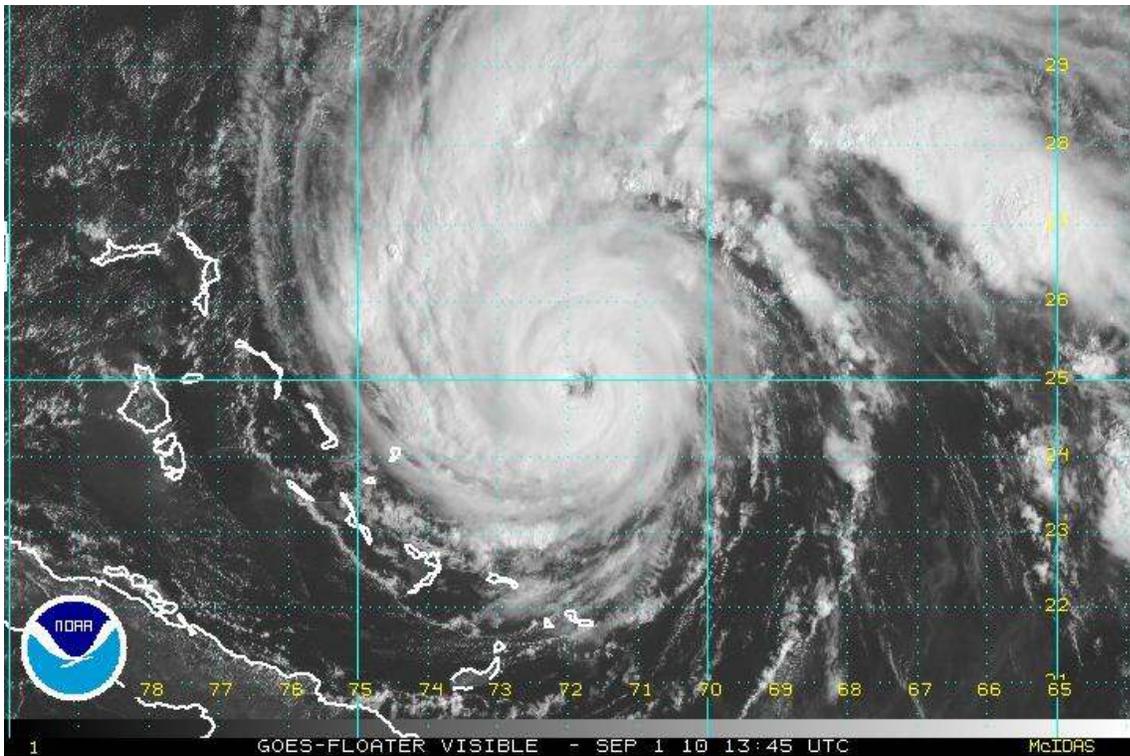
### Hurricane Earl

Hurricane Earl is located at 24.5N/71.6W as of the 8am advisory. The maximum sustained wind is 125 mph, movement 310 degrees at 26 km/hr, minimum sea level pressure of 943 hPa, and thus starting the day as a category 3. The visible indicated center at 1345 UTC was 71.9W/25N. Satellite imagery (3, 4) indicates that Earl is undergoing some shear from the north as an upper-level trough well to the northeast of the storm pulls some of Earl's outflow (4); note the 40 kt deep vertical wind shear to the north of Earl. Directly over Earl, shear is actually moderate; 15-20 kt (4). The result has been an extension of the outflow northward, which bodes well for today's DC-8 mission objectives. Unlike yesterday, the eye has become more distinct, however, much larger than observed on Monday. The consensus forecast track is as follows (5): 02/0600UTC: 74.0W/27.5N; 03/0600UTC: 74W/34N; 04/0600UTC: 41N/67W; 05/0600UTC: huge spread through extratropical transition. The intensity (6) 02/1200UTC: 110 kt (CAT3); 03/1200UTC: 105 kt (CAT3); 04/1200UTC: 80 kt (CAT2); 05/1200UTC: 50 kt (CAT1).

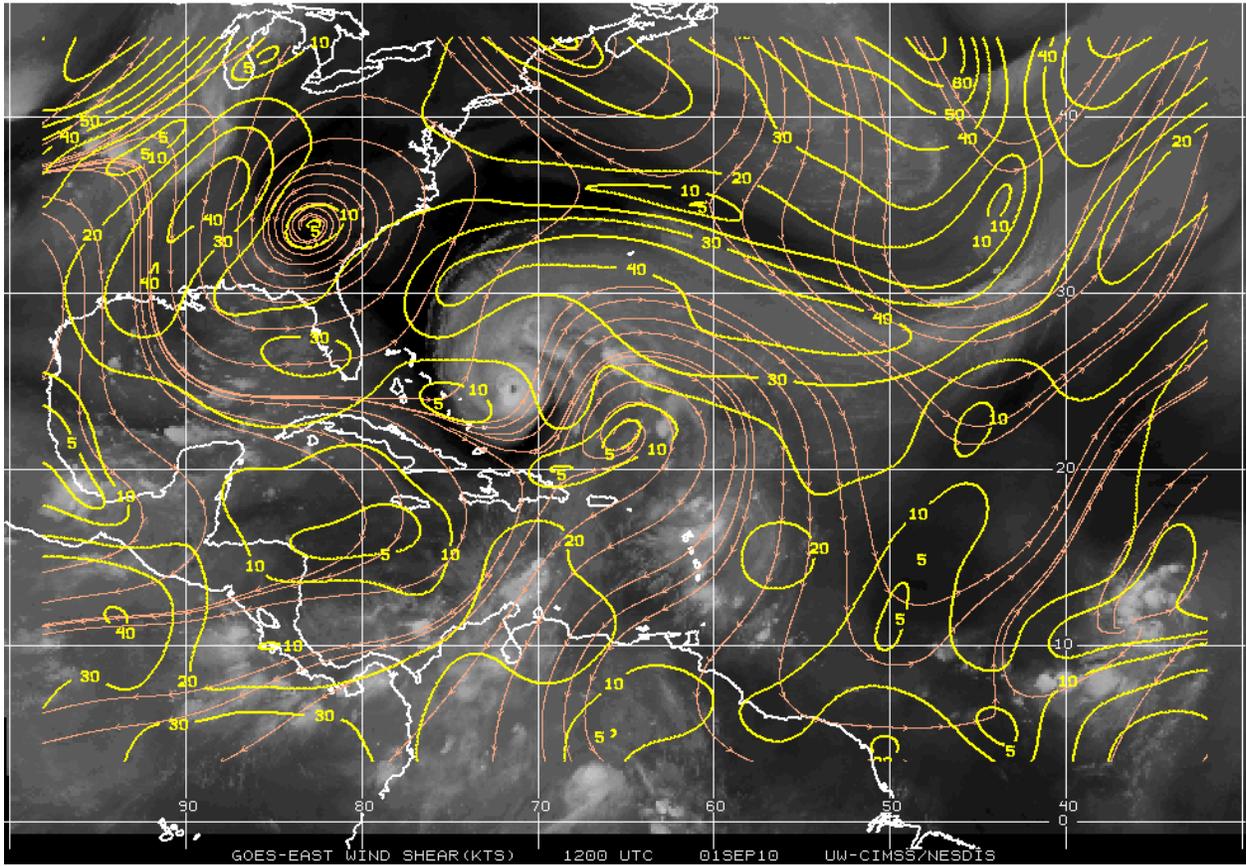
### (3) IR imagery of Earl at 1345 UTC 1 September 2010



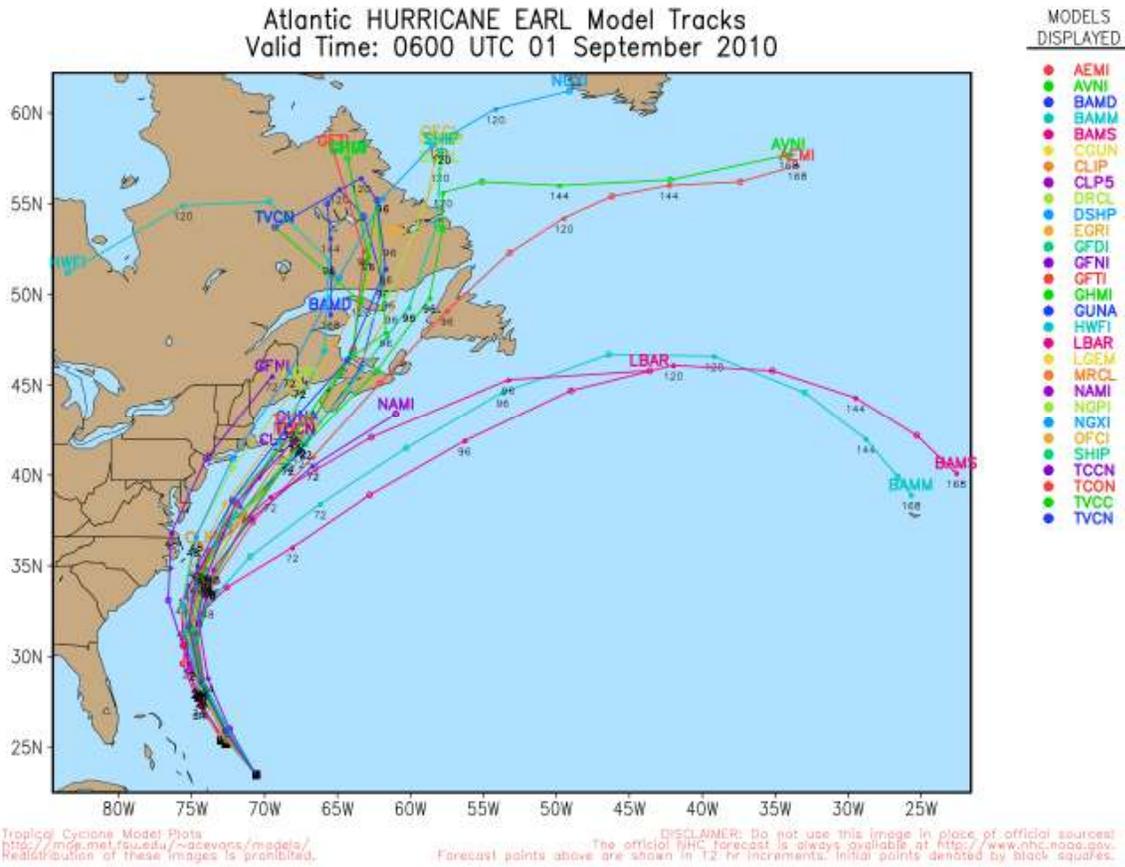
(4) Visible imagery of Earl from 1345 UTC on 1 September 2010



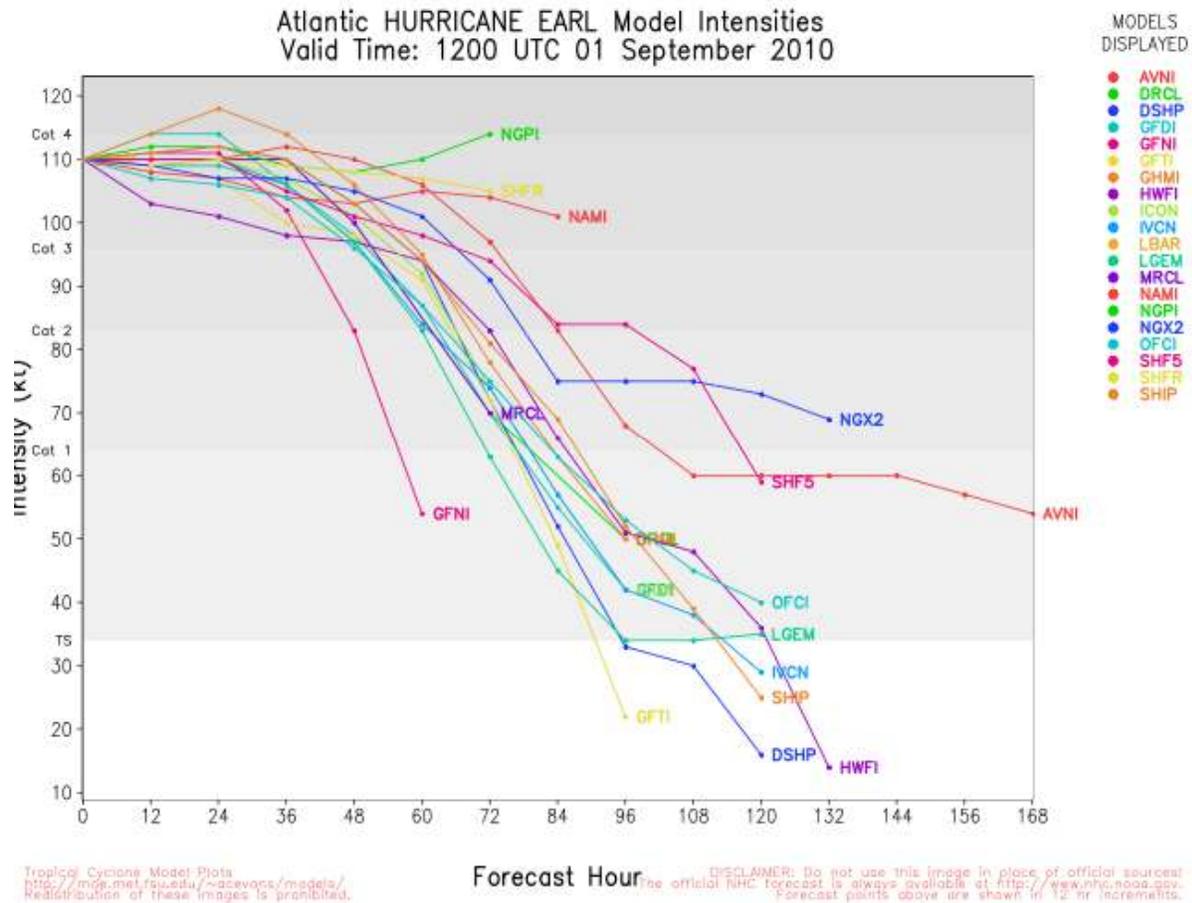
(5) CIMSS Vertical Wind Shear 1200 UTC 1 September 2010



(6) Model tracks for Hurricane Earl, 0600UTC 1 September 2010



**(7) Model intensity for Hurricane Earl, 1200 UTC 1 September 2010**



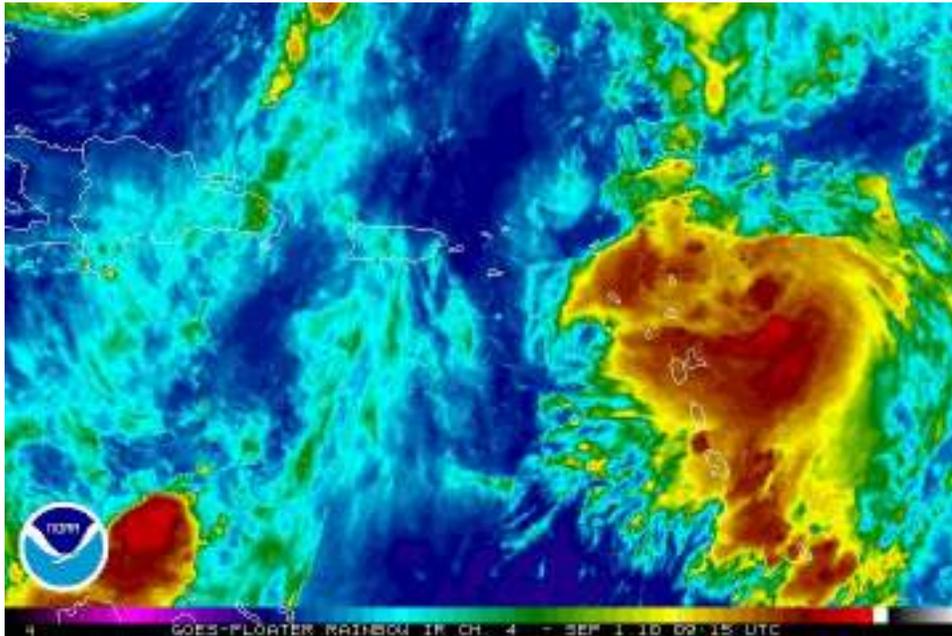
**Tropical Storm Fiona**

As of the 11am EDT advisory, Tropical Storm Fiona was located at 18.8N/61.7W with maximum sustained winds of 60 mph. Fiona was moving towards the NW at 17 mph. This morning, satellite imagery revealed Fiona had become a little better organized (8), although most of the convective activity was displaced to the south and east of the storm’s center. The latest satellite images, however, indicate this convective activity is rapidly decaying as the storm has become rather disorganized again (9). Fiona is currently located in an environment with warm SSTs (> 29°C). However, moderate wind shear values (15-20 knots) and some dry air to the north of the system (10) will most likely inhibit any significant strengthening.

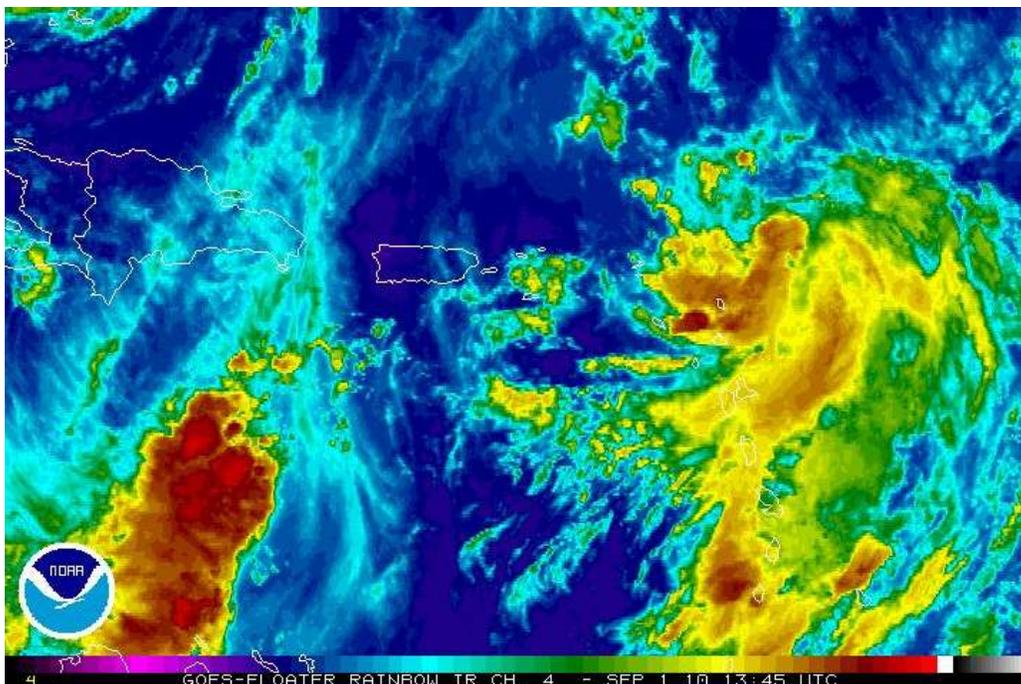
The consensus track guidance takes Fiona towards the NW over the next 24-36 hours, after which the storm is expected to slow down and begin curving northward around the western periphery of the subtropical ridge (10). In terms of intensity (11), model guidance suggests any additional strengthening of Fiona would occur within the next 24 hours while the wind shear is reduced and the SST environment

is still favorable. Even the most aggressive guidance only strengthens Fiona to a category one hurricane, so the storm is most likely nearing its peak intensity. Beyond Friday, Fiona is expected to slow down and weaken to a tropical depression by Sunday.

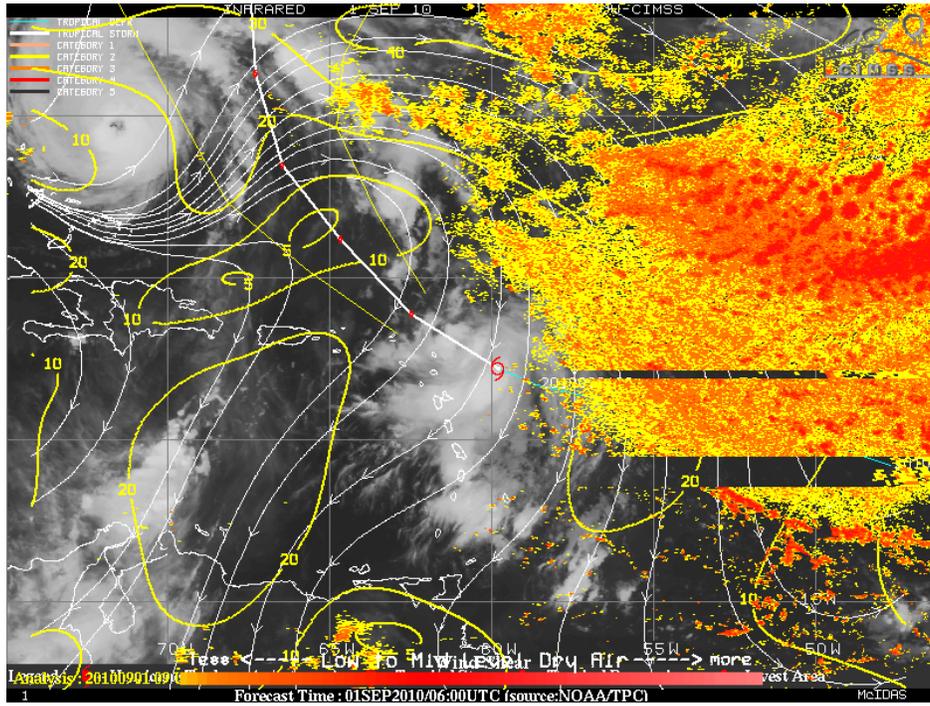
**(8) 0915 UTC Sept 1 enhanced IR imagery of TS Fiona**



**(9) 1345 UTC Sept 1 enhanced IR imagery of TS Fiona**



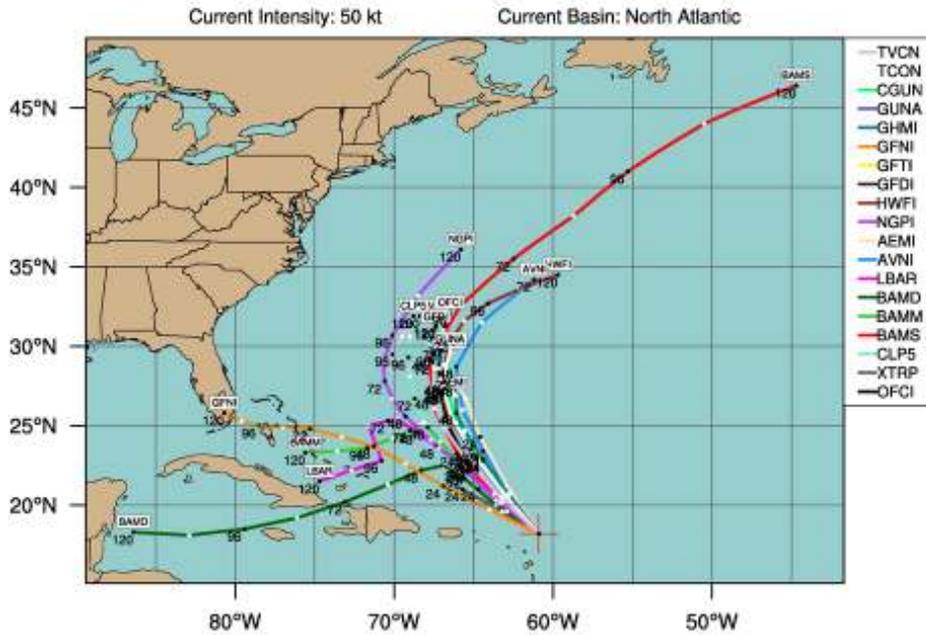
(10) Visible satellite imagery of TS Fiona, along with CIMSS wind shear and dry air analyses



(11) Model tracks for Tropical Storm Fiona, 1200UTC 1 September 2010

### TROPICAL STORM FIONA (AL08)

Early-cycle track guidance valid 1200 UTC, 01 September 2010

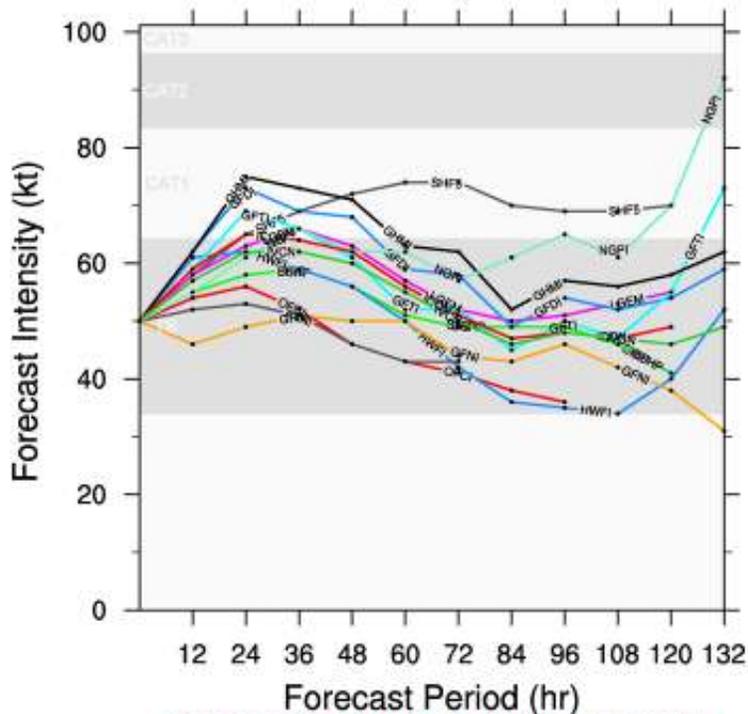


This plot does not display official storm information. Use for information purposes only. DO NOT USE FOR LIFE AND DEATH DECISIONS!

(12) Model intensity for Tropical Storm Fiona, 1200UTC 1 September 2010

### TROPICAL STORM FIONA (AL08)

Early-cycle intensity guidance valid 1200 UTC, 01 September 2010



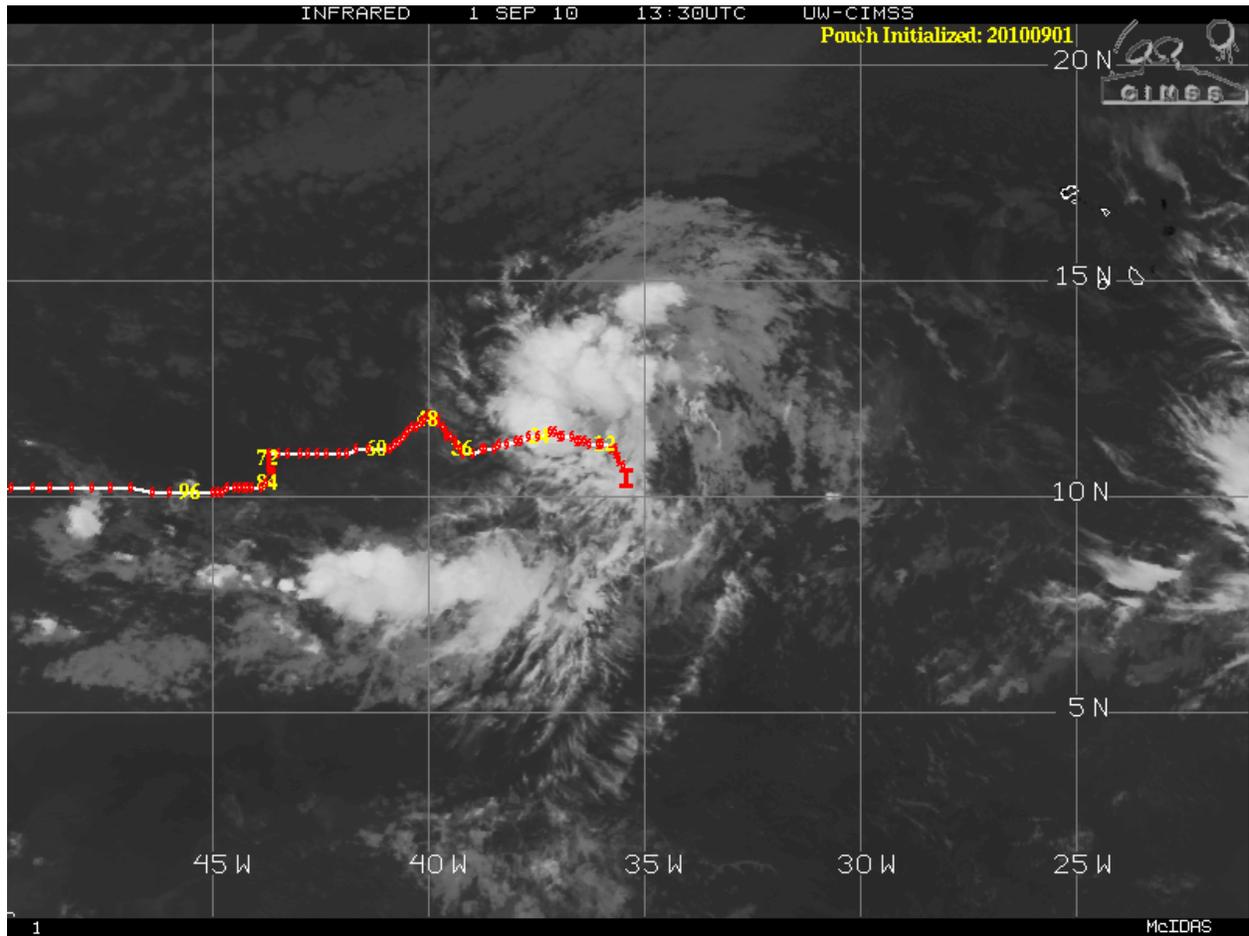
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## **TD-9 (PGI 38-L) and PGI-39L**

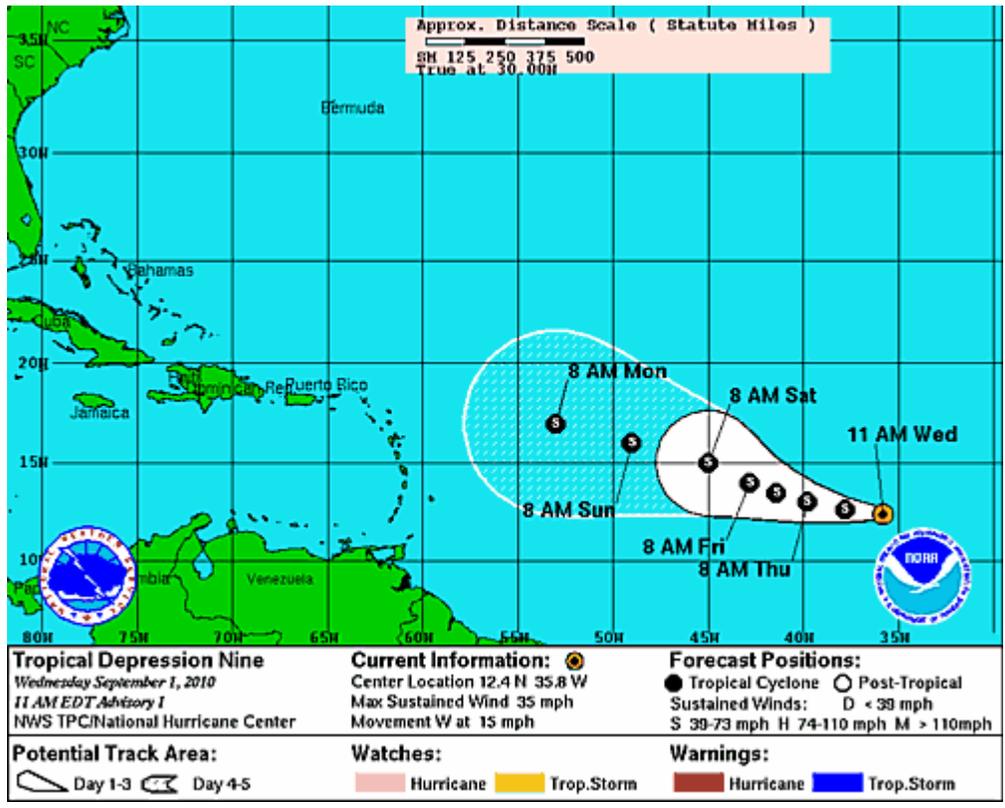
PGI-38L is located around 12N,35W. PGI-38L has become better organized over the past 24 hours and is now TD-9. The environment around TD-9 is fairly favorable. SSTs are above 28 C, and wind shear is below 10kts. However, dry air associated with a SAL outbreak continues to be present to the North **(15)** and East of TD-9. A 0300 UTS AIRS sounding at 14N, 36.5W shows very dry mid levels **(16)**. However, the environment around the center and to the west of PGI-38L is moist. There is some conflict among the global models regarding the forecast of TD-9. The 00Z ECMWF and CMC develop the system into the depression currently being observed, while the GFS and NOGAPS do not. These two models show a general WNW track for the next 5 days, and this is consistent with the 12Z model ensembles and NHC **(14)**. However, it is worth noting that large spread in the track forecast remains among the models. There is more agreement in the intensity forecast, and slow intensification is predicted by all available 12Z guidance. The position/intensity forecast for TD-9 is: 02/0000Z 12.6N/ 37.8W, 35kts; 02/1200UTC 13.0N/37.8W 35kts; 03/0000UTC 13.5N/41.4W 40kts; 03/1200UTC 14.0N/42.8W 40kts; 04/1200UTC 15.0N/45.0W 40kts; 05/1200UTC 16.0N/49.0W 45kts; 06/1200UTC 17.0N/53.0W 50kts.

PGI-39L is located off the African Coast at 12N, 20W **(17)**. No models are indicating any substantial immediate development of PGI-39L, but several at least maintain it for the next few days. After that, the GFS does indicate the development of a large low level vorticity center. The consensus track is generally southwesterly followed by a turn to the west. The Lat Lon consensus is: 02/0100UTC: 20.9W/10.7N; 02/1300UTC: 21.2W/11.0N; 03/0100UTC 24.5W/10N; 03/1300UTC 25.4W/9.6W; 04/0100UTC 26.9W/9.5N; 04/1300UTC 27.7W/9.6N; 05/0100UTC 29.00W/10N; 05/1300UTC 29.9W/10.1N.

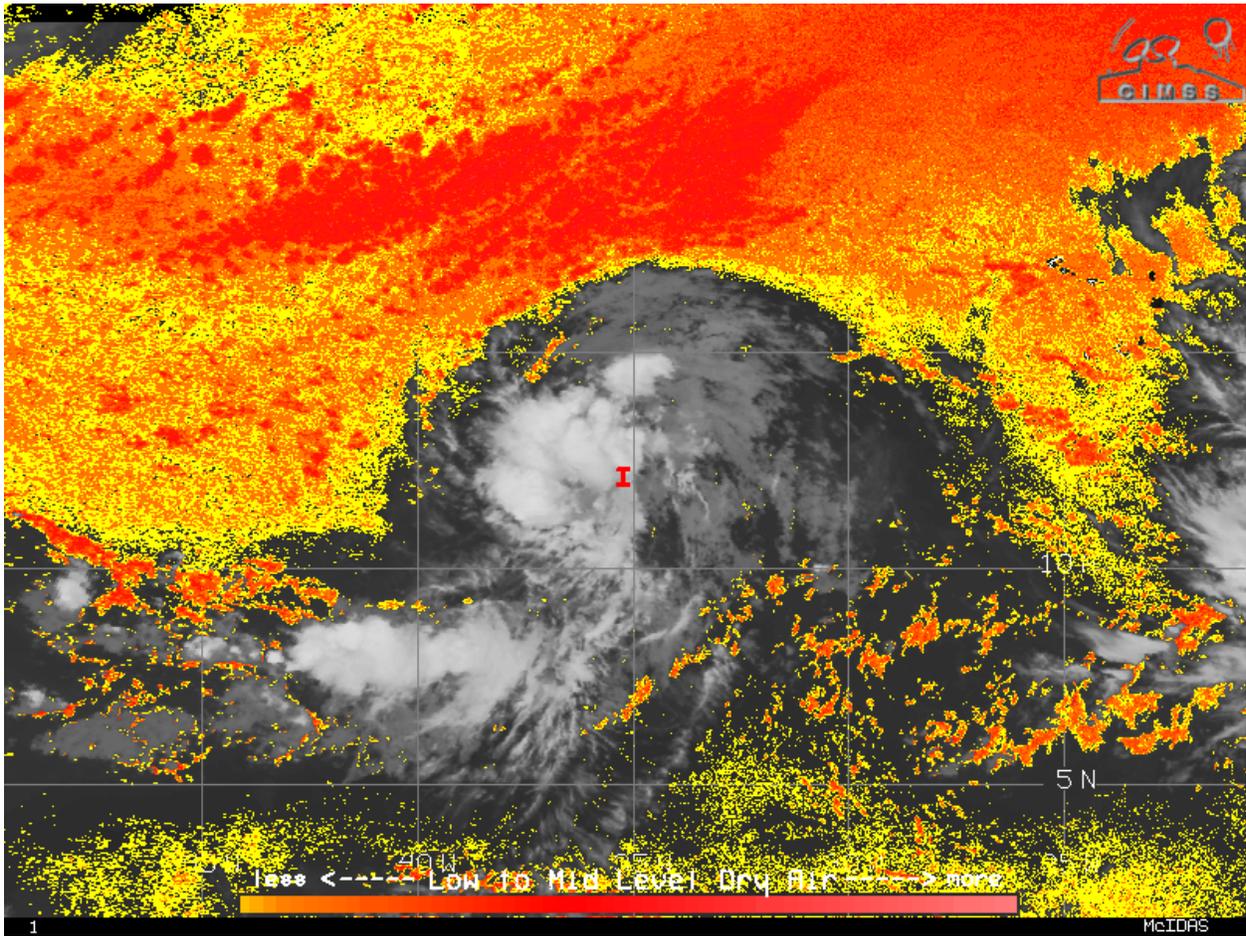
(13) 1230 UTC IR Image of PGI-38L and model consensus track



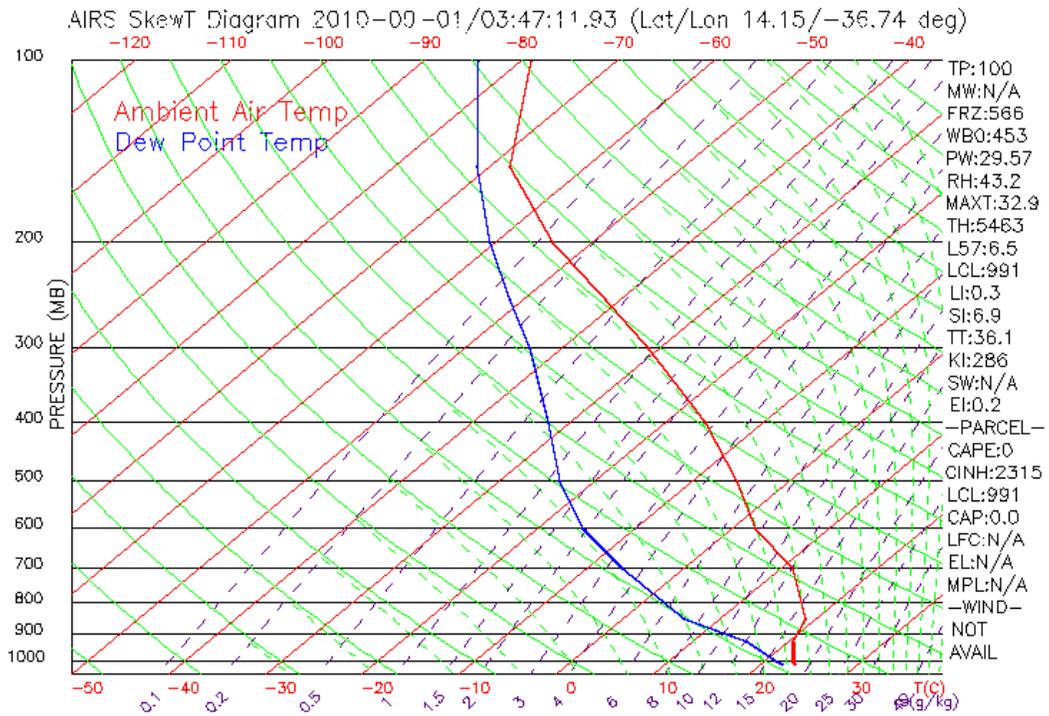
(14) NHC official forecast



(15) CIMSS Dry Air (SAL) 0600 UTC analysis



(16) 0300Z AIRS sounding NE of PGI-36L



(17) PGI-39L 13:30 UTC IR image and Pouch forecast Track

